

Claims

1. A method for continuous or semi-continuous casting of metal, in particular directly-cooled (DC) casting of aluminium, including (1) at least one mould (3) with a mould cavity (11) that is provided with an inlet (4) linked to a metal store and an outlet with devices for cooling the metal so that an object in the form of an extended string, tie rod (25) or wire bar is cast through the outlet,

characterised in that

the metal is supplied to the mould (3) in such a way and with such regulation that the metallostatic pressure in the contact point (solidification zone) against the mould wall is principally zero during casting.

2. A method in accordance with claim 1,

characterised in that

the metal is supplied to the mould (3) via a metal supply system (5, 31) that is sealed from the environment and makes it possible, by means of counter-pressure, to regulate the gas pressure over the metal level (26) in relation to the metallostatic pressure in the chill.

3. A method in accordance with claims 1 and 2,

characterised in that

the metal supply system comprises a distribution chamber (5) or duct (31) that is connected to and is supplied with metal from an intermediate metal reservoir (17) arranged at a lower level, whereby the metal is supplied to the reservoir (17) via a valve device (18) and is regulated by means of this valve device to achieve a siphon effect, whereby the metal level (23) in the reservoir is virtually the same as or slightly higher than the metal level (26) in the mould cavity (11) in the mould (3) and whereby the counter-pressure in the chill during casting is equivalent to atmospheric pressure.

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4. A method in accordance with claims 1-3,

characterised in that

the metal is supplied to a chill of the hot-top type that is provided with permeable wall elements (15) for the supply of gas and/or oil to the metal solidification zone.

5. Equipment for continuous or semi-continuous casting of metal (1), in particular directly-cooled (DC) casting of aluminium, including at least one mould (3) with a mould cavity (11) that is provided with an inlet (4) linked to a metal store and an outlet with devices for cooling the metal so that an object in the form of an extended string, rod (25) or bar is cast through the outlet,

characterised in that

the metal is designed to be supplied to the mould (3) in such a way and with such regulation that the metallostatic pressure in the contact point (solidification zone) against the mould wall is principally zero during casting.

10. 6. Equipment in accordance with claim 5,

characterised in that

the metal is designed to be supplied to the mould wall via a metal supply system (5, 31) that is sealed from the environment and makes it possible, by means of counter-pressure, to regulate the gas pressure over the metal level (26) in the mould cavity in relation to the metallostatic pressure in the mould.

15. 7. Equipment in accordance with claims 5 and 6,

characterised by

a distribution chamber or duct (5, 31) that is connected to and is designed to be supplied with metal from an intermediate metal reservoir (17) arranged at a lower level, whereby the metal is designed to be supplied to the reservoir (17) via a valve device (18) and is designed to be regulated by means of this valve device to achieve a siphon effect, whereby the metal level (23) in the reservoir is virtually the same as or slightly higher than the metal level (26) in the mould cavity in the mould wall, and whereby the counter-pressure in the mould during casting is equivalent to atmospheric pressure.

20. 8. Equipment in accordance with claims 5-7,

characterised in that

the chill is of the hot-top type and comprises permeable rings or wall elements (15) for the supply of gas and/or oil to the metal solidification zone.

9. Equipment in accordance with claims 5 and 6,  
characterised in that  
the counter-pressure system comprises a pressure tank or pressure reservoir in  
5 which the pressure is higher than the ambient atmospheric pressure.

10. Equipment in accordance with claims 5 and 6,  
characterised in that  
the casting equipment, including the sealed metal supply system (5), is designed  
10 in such a way that the casting operation takes place under vacuum, i.e. at a  
pressure under the ambient atmospheric pressure.